

CLAIMS

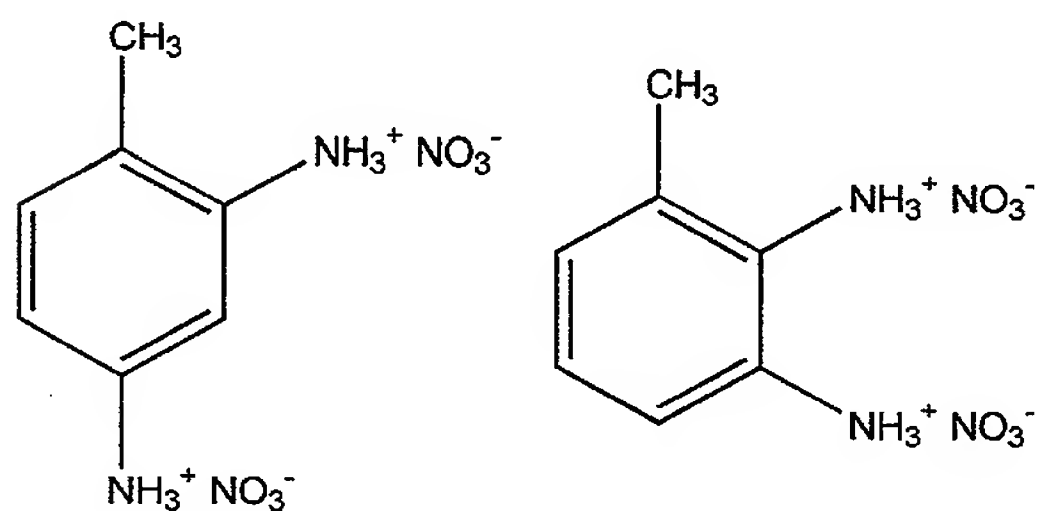
What is claimed is:

1. In a process for the wet oxidation of a waste stream containing organic carbon and organic or inorganic nitrogen-containing pollutants using a nitrate as the denitrifying agent under conditions wherein at least a portion of the organic carbon is converted to carbon dioxide and at least a portion of organic or inorganic nitrogen-containing pollutants are converted to nitrogen, the improvement which comprises:
initially removing organic or inorganic nitrogen-containing pollutants using a nitrate salt of an aliphatic amine or an aromatic amine as the denitrifying agent at a temperature from 180 to 300°C and a pressure sufficient to maintain liquid phase conditions; and,
then, effecting further removal of the organic carbon containing pollutant by treatment with activated carbon, chemical oxidation, or biotreatment.
2. The process of Claim 1 wherein the aliphatic amine is a C₁₋₄ alkyl amine or a cycloaliphatic amine.
3. The process of Claim 2 wherein the aliphatic amine is selected from the group consisting of methylamine, ethylamine, butylamine, cyclohexylamine, methylcyclohexylamine, cyclohexyldiamine, and methylcyclohexyldiamine.
4. The process of Claim 2 wherein pH is maintained within a range of 1.5 to 4.

5. The process of Claim 4 wherein the nitrate salt is an aromatic amine nitrate.

6. The process of Claim 5 wherein the aromatic amine nitrate is selected from the group consisting of toluene-monoammonium nitrate, toluene-diammonium nitrate and aniline ammonium nitrate.

7. The process of Claim 6 wherein the aromatic amine nitrate is selected from the group consisting of toluenediamine nitrate salts represented by the formulas:



and a nitrate salt of aniline.

8. The process of Claim 7 wherein the process is carried out a temperature of from 230 to 280 °C.

9. The process of Claim 8 wherein the process is operated at a pressure of from 900 to 1500 psig (6,307 to 10444 kPa).

10. The process of Claim 9 wherein the waste stream is contaminated with a nitrate form of organic or inorganic nitrogen-containing pollutant.

11. The process of Claim 10 wherein from 50 to 80% of total organic carbon is removed in the wet oxidation process.

12. The process of Claim 11 wherein the waste stream is contaminated with
5 nitroaromatics.

13. The process of Claim 12 wherein the waste stream is contaminated with sulfur containing compounds and pH is controlled by addition of an alkali metal.

10 14. The process of Claim 13 wherein the waste stream is contaminated with sulfur containing components and ammonium acetate or acetic acid is added to the waste stream.

15 15. The process of Claim 14 wherein the waste stream is obtained from mixed acid dinitration of toluene.